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10/500,819

07/07/2004

Ryuji Shiozaki

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12/14/2006

MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC
8321 OLD COURTHOUSE ROAD
SUITE 200
VIENNA, VA 22182-3817

EXAMINER

CHUO, TONY SHENG HSIANG

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 12/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/500,819

Applicant(s)

SHIOZAKI ET AL.

Examiner

Tony Chuo

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1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 7/7/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 7/7/04 was filed on 7/7/04. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

3. The drawings filed on 7/7/04 are accepted by the examiner.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 11 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The addition of the word "type" to an otherwise definite expression extends the scope of the expression so as to render it indefinite.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Oshita et al (JP 10-289731). The Oshita reference discloses a non-aqueous electrolyte battery having a negative electrode, a non-aqueous electrolyte, and a positive electrode containing a positive active material comprising a compound expressed by the formula of $\text{Li}_a\text{Co}_b\text{Mn}_c\text{M}_d\text{Ni}_{1-(b+c+d)}\text{O}_2$ wherein $0 < a < 1.2$, $0.1 \leq b < 1$, $0.05 \leq c < 1$, $0 \leq d < 1$, $0.15 \leq b+c+d < 1$ (See paragraphs [0010],[0012],[0023]). It also discloses an example 16 containing $\text{LiMn}_{0.05}\text{Ni}_{0.05}\text{Co}_{0.9}\text{O}_2$ which meets the limitation of $0 < a \leq 1.3$, $|b-c| < 0.03$, $0.8 \leq d < 1$, and $1.7 \leq e \leq 2.3$, $b+c+d=1$ (See Table 2).

8. Claims 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Noma et al (JP 05-242891). The Oshita reference discloses a non-aqueous electrolyte battery having a negative electrode, a non-aqueous electrolyte, and a positive electrode containing a positive active material that is $\text{Li}_a\text{Mn}_b\text{Ni}_c\text{Co}_d\text{O}_e$ wherein $0 < a < 1.3$, $0.02 \leq b \leq 0.5$, $0.02 \leq d/c+d \leq 0.9$, $1.8 < e < 2.2$, and $b+c+d=1$ (See paragraphs [0006],[0012],[0031]). An example of the active material that would meet the limitation of $0 < a \leq 1.3$, $|b-c| < 0.03$, $0.8 \leq d < 1$, $1.7 \leq e \leq 2.3$, and $b+c+d=1$ is $\text{LiMn}_{0.1}\text{Ni}_{0.1}\text{Co}_{0.8}\text{O}_2$.

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9. Claims 7-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Fujimoto et al (US 2003/0180617). The Fujimoto reference discloses a non-aqueous electrolyte battery having a negative electrode, a non-aqueous electrolyte, and a positive electrode containing a positive active material comprising a compound represented by $\text{Li}_a\text{Mn}_b\text{Ni}_b\text{Co}_{1-2b}\text{O}_2$ wherein $0 \leq a \leq 1.1$ and $0 < b \leq 0.5$ (See paragraph [0010]).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numata et al (JP 2000-077071) in view of Oshita et al (JP 10-289731). The Numata reference discloses a non-aqueous electrolyte battery having a negative electrode, a non-aqueous electrolyte, and a positive electrode containing (A) lithium manganese multiple oxide (LiMn_2O_4) having a spinel structure and (B) lithium nickel complex oxide (See paragraphs [0026],[0034],[0059],[0061]). Numata et al also discloses (A) and (B) in a proportion (weight ratio) of 90:10, 85:15, 80:20, 70:30, and 65:35 (See paragraph [0080]). However, Numata et al does not expressly teach a lithium-nickel-manganese-cobalt composite oxide having an $\alpha\text{-NaFeO}_2$ type layer structure and represented by the general formula $\text{Li}_a\text{Mn}_b\text{Ni}_c\text{Co}_d\text{O}_e$ wherein $0 < a \leq 1.3$, $|b-c| < 0.03$, $0.8 \leq d < 1$, $1.7 \leq e \leq 2.3$, and

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$b+c+d=1$. The Oshita reference discloses a non-aqueous electrolyte battery having a negative electrode, a non-aqueous electrolyte, and a positive electrode containing a positive active material comprising a compound expressed by the formula of $\text{Li}_a\text{Co}_b\text{Mn}_c\text{M}_d\text{Ni}_{1-(b+c+d)}\text{O}_2$ wherein $0 < a < 1.2$, $0.1 \leq b < 1$, $0.05 \leq c < 1$, $0 \leq d < 1$, $0.15 \leq b+c+d < 1$ (See paragraphs [0010],[0012],[0023]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Numata positive electrode to include a lithium-nickel-manganese-cobalt composite oxide having an α - NaFeO_2 type layer structure and represented by the general formula $\text{Li}_a\text{Mn}_b\text{Ni}_c\text{Co}_d\text{O}_e$ wherein $0 < a \leq 1.3$, $|b-c| < 0.03$, $0.8 \leq d < 1$, $1.7 \leq e \leq 2.3$, and $b+c+d=1$ in order to improve the cycle property and the charge preservation property of the non-aqueous electrolyte battery.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571) 272-0717. The examiner can normally be reached on M-F, 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's trainer, Susy Tsang-Foster can be reached on (571) 272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC


SUSY TSANG-FOSTER
PRIMARY EXAMINER